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A TETRA TECH COMPANY

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November 8, 2016

Joseph A. Gowers
Remedial Project Manager
Emergency and Remedial Response Division
USEPA Region II
290 Broadway, 19th Floor
New York, New York 10007-1866

Re: Ringwood Mines/Landfill Superfund Site
Soil Sampling and Testing for 1,4-Dioxane - OCDA

Dear Mr. Gowers:

Groundwater sampling results for well OB-17, located within the O'Connor Disposal Area (OCDA), indicate the presence of 1,4-dioxane at concentrations of approximately 17 ug/L. Based on the absence of similar concentrations in groundwater elsewhere in the OCDA, the observed concentration may suggest the presence of a localized source up gradient of this location (well location OB-17). In order to further evaluate this possibility, a targeted soils investigation is proposed as described below.

Figure 7 of the Remedial Investigation Report (RIR) for the OCDA, Arcadis, June 2013, illustrates historical and revised paint sludge areas that are shown also on the attached Figure 1. Based on review of test trench logs included with the RIR (relevant copies attached for reference), the New Jersey Technical Regulations and Guidance, the size of the area to be investigated, and the objective of determining if a localized source of 1,4-dioxane remains within these areas, a 30 x 60 foot grid was established as shown in Figure 1. Based on this sampling gird, a total of14 soil borings are proposed at the grid intersections, as shown on the attached Figure 1.

Each of the 14 borings will be advanced with a track mounted Sonic drilling rig, which will provide for access and allow for the collection of continuous soil cores. The borings will be advanced to the top of the water table, as observed in the field at the time of sampling. Based on the groundwater elevation mapping within the OCDA as presented in the Annual Sampling Report submitted on October 28, 2016, the groundwater elevation in the investigation area varies from approximately 492 feet mean sea level (msl) and 497 feet msl.

Based on the ground surface elevation at each of the 14 soil boring locations, it is anticipated that soil borings will be advanced to depths ranging from approximately 5 to 20 feet below grade resulting in between 1 to 4 five-foot cores per boring. One representative sample from the 6-inch increment will be collected for laboratory analysis for every five feet of sample depth to the top of the water table. In addition, once the groundwater is intersected, one saturated soil sample will also be collected at a depth of not less than 1 foot below the water table interface. In all, an estimated 50 – 55 soil samples will be collected based on approximate ground surface elevations and the water table elevation as mapped for the 2016 Annual Sampling Report. The actual number of samples will be dependent upon the observed water table depth at each location. Sonic core samples will be collected in disposable acetate sleeves.

Selection of the soil sample for laboratory analysis from within each of the five-foot core samples at each boring location will be based on field indications of any VOCs using headspace screening and visual inspection. Specifically, upon retrieval of the soil core, the soils will be screened with a photoionization detector (PID) and the resultant headspace measurement will be documented. Note, however, based on our experience and the low levels of VOCs historically detected using headspace techniques at the Site, a PID response is not anticipated. In addition to headspace screening, any observed soil staining, waste materials, or any other indication of any environmental concern, etc. will be documented.

One sample for laboratory analysis will be selected to represent the highest PID reading, any visual staining or the presence of any waste materials within each five foot sample interval. If there is no evidence of any VOCs, apparent staining, or waste, the sample for laboratory analysis will be collected from the interval with the finest average grain size (i.e., bias sample to fine grained materials (silt and clay) as compared to coarser grained materials (sand and gravel)) within each five foot interval. In addition, as noted above, one soil sample will also be collected at each boring location at a depth of not less than 1 foot below the water table.

All soil samples for laboratory analysis will be stored on ice and shipped under chain of custody to Alpha Analytical for analysis of 1,4-dioxane via Method 8270D SIM with Isotope Dilution which is the same methodology used for groundwater analysis. Blind duplicate samples will be collected at a rate of 1 per 20 soil samples for laboratory analysis. The method detection limit (MDL) and reporting limit (RL) for soils is 4 ppb and 8 ppb (ug/kg), respectively. Although there is no NJDEP soil remediation standard for 1,4-dioxane in soil, data will be evaluated to determine if there is any indication of a localized source for concentrations reported in groundwater at well OB-17.

The 14 soil borings will be identified as B-2016-1 through B-2016-14. Samples collected for laboratory analysis will be identified by boring number and sample depth (e.g., B-2016-1-2.5-3.0). The soil cores and used acetate sleeves will be drummed and staged at the Peters Mine Pit (PMP) Area pending disposal and the boreholes will be backfilled with bentonite or grout.

Following receipt of the analytical laboratory data, a letter report will be prepared documenting the field work and summarizing the soil analytical results and outlining conclusions and recommendations based on evaluation of all of the data collected. The text of the letter will be supported by data summary tables, soil boring logs, the analytical laboratory data report, and a figure, similar to the attached, illustrating the location of the boreholes. As necessary and appropriate, additional figures may be prepared to reflect the field and laboratory analytical results of the investigation.

Please do not hesitate to contact us with any questions you may have regarding the work described above. Upon approval from United States Environmental Protection Agency (USEPA), the work will be scheduled and implemented pending availability of the drilling subcontractor.

Sincerely,

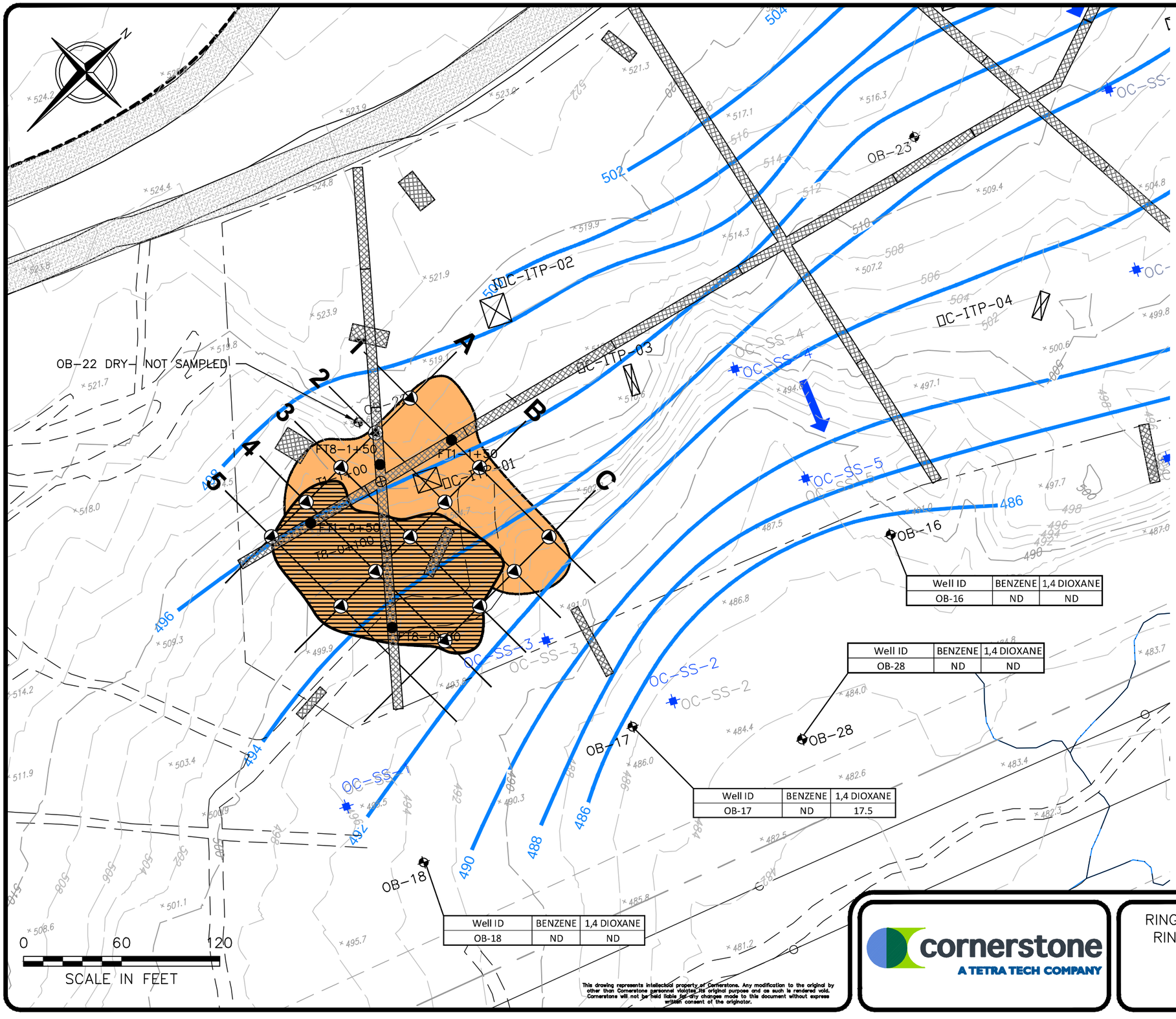
Cornerstone Engineering Group, LLC

Gary J. DiPippo
Professional Engineer
NJ License #GE02646100

Timothy R. Roeper
Client Manager, Hydrogeology

Enclosure: Figure 1
Test Trench Logs

cc: B. Bussa, Ford
T. Green, Ford OGC.
J. Lagrotteria, LeClairRyan
D. Laguzza, LeClairRyan
K. Petrone, NJDEP
L. Dodge, Excel
R. Harwood, Excel
W. Monahan, Sedita, Campisano & Campisano
C. Coslett, de maximis



Well ID	BENZENE	1,4 DIOXANE
OB-16	ND	ND

Well ID	BENZENE	1,4 DIOXANE
OB-28	ND	ND

Well ID	BENZENE	1,4 DIOXANE
OB-17	ND	17.5

Well ID	BENZENE	1,4 DIOXANE
OB-18	ND	ND

LEGEND:

- 530 — EXISTING CONTOUR
- 514 — GROUNDWATER CONTOUR LINE RELATIVE TO MEAN SEA LEVEL (AUG. 2016)
- GROUNDWATER FLOW DIRECTION
- LIMIT OF SURFACE WATER
- OVERHEAD UTILITY LINES
- PROPERTY BOUNDARY
- OUTLINE OF O'CONNOR DISPOSAL AREA
- EXISTING DIRT ROAD/TRAIL
- OB-16 — OVERBURDEN MONITORING WELL LOCATION
- OCDA — O'CONNOR DISPOSAL AREA
- APPROXIMATE LIMITS OF REMOVAL AREAS – SOIL, PAINT SLUDGE, AND DRUM REMNANTS
- APPROXIMATE LIMITS OF HISTORIC SLUDGE REMOVAL
- STREAM
- PROPOSED SOIL SAMPLE LOCATION

NOTE:
REMOVAL AREAS AS SHOWN IN THE DOCUMENT REMEDIAL INVESTIGATION REPORT FOR O'CONNOR DISPOSAL AREA (ARCADIS JUNE 2013)

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RINGWOOD MINES/LANDFILL SUPERFUND SITE
RINGWOOD, PASSAIC COUNTY, NEW JERSEY

OCDA SOIL SAMPLING GRID

FIGURE NO. **1**

PROJECT NO. 140802